

# COA

## Chapter 08: | OS Support – Partitioning

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# | AGENDA

- Partitioning

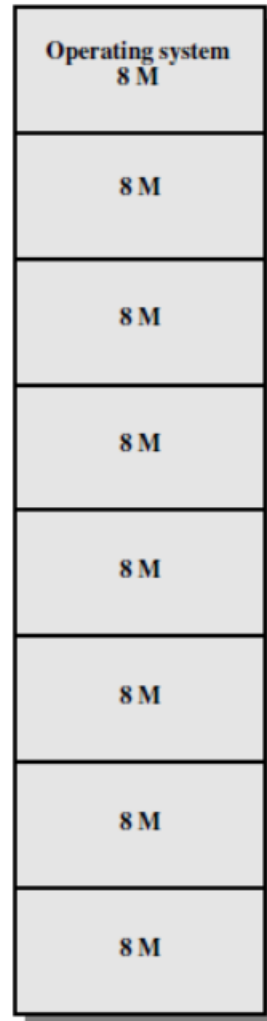
# | Partitioning

- The memory is divided into two partitions: one for the **resident operating system** and one for the **user processes**
- Divide memory into sections to allocate to processes (including Operating System)
  - The **degree of multiprogramming** is bound by the number of partitions

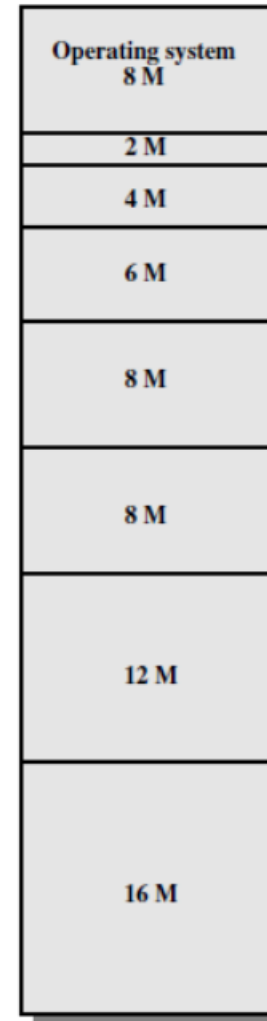
# | Partitioning

- Fixed-sized partitions
  - May not be equal size
  - Process is fitted into smallest hole that will take it (**best fit**)
  - Some wasted memory
  - Leads to variable sized partitions

# | Fixed Partitioning



(a) Equal-size partitions

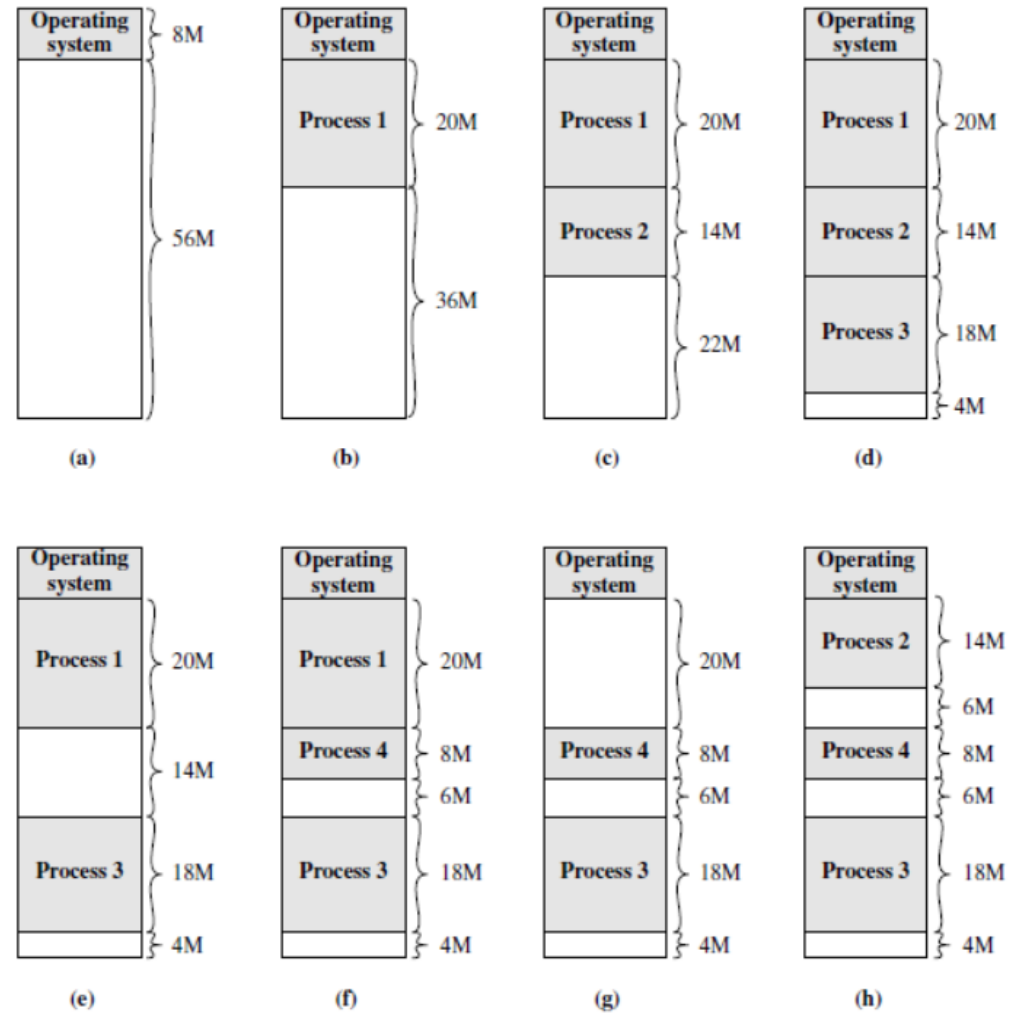


(b) Unequal-size partitions

# | Variable-sized Partition

- Allocated exactly as much memory as it requires and no more
- When all processes are blocked, swap out a process and bring in another
- New process may be smaller than swapped out process
- Eventually it leads to a situation in which **there are a lot of small holes** in memory
  - **Compaction**
  - **is not always possible**

# | Effect of Dynamic Programming



# | Relocation

- No guarantee that process will load into the same place in memory
- Instructions contain addresses
  - Locations of data
  - Addresses for instructions (branching)

# | Relocation

- **Logical address** - relative to beginning of program
- **Physical address** - actual location in memory

